PATENT SPECIFICATION

710,470

Date of Application and filing Complete Specification: May 27, 1952. No. 13441/52.

Complete Specification Published: June 16, 1954.

Index at acceptance:—Class 125(3), T7F1.

COMPLETE SPECIFICATION

Improvements in and relating to the Sealing of Bottles and other Containers

I, CHARLES DOUGLAS WALLER, a British Subject, of 151, Westwood Park, Forest Hill, London, S.E.23, do hereby declare the invention, for which I pray that a patent may be granted to me, and the method by which it is to be performed, to be particularly described in and by the following statement:—

The present invention relates to the sealing of bottles or other containers with the aid of a sealing pad or wad (hereinafter termed "wad") which is adapted to be clamped between the mouth of the container and the crown of a closure cap, the cap being usually screwed to the container.

These wads are usually made of uniform thickness and are open for one reason or another to certain objections depending upon the nature of the material of which they are made. For example, although wads of cork (sometimes faced with a thin foil of a suitable deformable material, e.g., tin or a suitable flexible plastic) compress readily and mould themselves under pressure to the edge of the mouth orifice sufficiently to form an effective seal, they are liable to deteriorate under the action of certain liquids. Wads of certain high-polymer materials, such as polythene, are more resistant to deterioration but, when made of uniform thickness, do not satisfactorily mould themselves as aforesaid and tend to produce unsatisfactory sealing. Moreover, in many cases the inside of the crown of the cap by means of which pressure is applied to the wad is concave and sealing round the edge of the mouth orifice is difficult to obtain. In many cases ineffective sealing leads to deterioration of the contents of the container.

The object of the present invention is to provide a wad which is less likely to deteriorate and is better adapted to provide an effective seal and to this end the present invention consists essentially of a wad having centrally disposed on its obverse face a preformed conoidal or frustro-conoidal protuberance adapted to make contact with the whole of the periphery of the edge of an orifice of a container and which has on its reverse face a projection or projections adapted to transmit the pressure from a closure cap to the protuberance, the conoidal surface being of non-porous elastically deformable high-polymer material which is adapted under pressure resiliently to mould itself to the said edge in sealing relation thereto. By the term "conoidal" and "frusto-conoidal" I include herein and in the claims hereof surfaces which are wholly or in part spherical.

There may be a single projection arranged centrally of the reverse face of the wad and co-axially with the protuberance, or theremay be two or more projections arranged in the central region of the reverse face and equi-spaced from one another, e.g., three projections for preference, particularly for the larger sizes of wad. The wad, the protuberance and the projection or projections are preferably made in one piece.

The material "Polythene" (and particularly that sold under the registered Trade Mark "Alkathene") is particularly suitable because of its ability to maintain flexibility despite repeated clamping and unclamping, its moisture vapour resistance and its inertness to many chemicals at normal temperatures. Also suitable in many cases are the poly-vinyl chloride or acetate plastics or rubber (natural or synthetic) but the choice of material depends inter alia upon the nature of the liquid to be sealed.

The protuberance may be dome-shaped, e.g., a segment of a sphere.

The projection may be a cylinder, e.g., a solid cylinder, of appropriately smaller diameter than that of the base of the

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Price 4s 6d

protuberance.

Preferably the central region of the reverse face is recessed below the outer margin of the said face and the projection is or the projections are made to extend slightly above the plane of the outer margin so that the crown of the cap will first press against the projection or projections and while applying pressure thereto will then make contact with and apply the pressure to the said margin.

In order that the invention may be the more readily understood, reference is hereinafter made to the accompanying drawings, in which one form of the invention is illustrated by way of example, and in which:—

Fig. 1 is a cross sectional view, Fig. 2 a top plan view and Fig. 3 an under plan view of the wad; Fig. 4 is a view showing the wad ready for clamping to the mouth of a bottle.

The wad is a circular disc, one face of which has a shallow dome-shaped protuberance 1 thereby providing a sealing surface 1*a*, and the other face of which has a central cylindrical projecting stub 2 of a diameter substantially less than the diameter of the base of the protuberance. The face of the wad from which the stub 2 projects has a marginal raised rim 3 of a height a little less than the height of the stub. The wad is made of the material polythene. The example shown is about 3/8" in diameter and of the proportions shown.

When the wad is clamped between the edge 8 of the mouth of the bottle 5 by means of the crown 6 of the screw-on cap 7, the sealing surface of the protuberance, which initially rests on the edge 8 of the mouth orifice and therefore spaces the wad away from the end face 4 (see Fig. 4), is pressed firmly against the said edge and moulds itself sufficiently into conformity with said edge to seal the orifice effectively, the pressure being applied through the stub by the central region of the crown of the cap. If the cap be suitably dimensioned and be screwed home sufficiently the margin of the crown thereof also engages the raised rim aforesaid and by reason of this engagement presses the wad against the edge 9 of the shouldered end face aforesaid.

What I claim is:—

1. A sealing wad for the mouth orifice of a container and having centrally disposed on its obverse face a preformed conoidal or frusto-conoidal protuberance adapted to make contact with the whole of the periphery of the edge of the said orifice and having on its reverse face a projection or projections adapted to transmit the pressure from a closure cap to the protuberance, the conoidal surface being of non-porous elastically deformable high-polymer material which is adapted under pressure to mould itself to the said edge in sealing relation thereto.

2. A sealing wad according to Claim 1 in which the protuberance is of shallow part-spherical shape.

3. A sealing wad according to Claim 1 in which the protuberance is of dome shape.

4. A sealing wad according to Claim 1, 2 or 3, in which there is a single projection arranged centrally of the wad and the protuberance.

5. A sealing wad according to Claim 1, 2 or 3, in which there are two or more projections arranged in the central region of the wad.

6. A sealing wad according to any one of the preceding claims in which the central region of the said reverse face is recessed below the outer margin of the said face and the projection is or the projections are made to extend slightly above the plane of the outer margin.

7. A sealing wad according to any one of the preceding claims when moulded in one piece.

8. A sealing wad according to Claim 7 in which the wad is made of polythene.

9. A screw-on closure cap containing a wad according to any one of the preceding claims.

10. A bottle or other container having a closure cap containing a wad according to any one of the preceding claims.

11. A sealing wad substantially as herein described with reference to and as illustrated in the accompanying drawings.

12. A container cap and sealing wad substantially herein described with reference to and as illustrated in Fig. 4 of the accompanying drawings.

Dated the 27th day of May, 1952.

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Printed for Her Majesty's Stationery Office by Wickes & Andrews, Ltd., E.C.4. 39/244.—1954.
Published at The Patent Office, 25, Southampton Buildings, London, W.C.2, from which copies may be obtained.

710,470 COMPLETE SPECIFICATION
1 SHEET

This drawing is a reproduction of the Original on a reduced scale.

Fig. 1

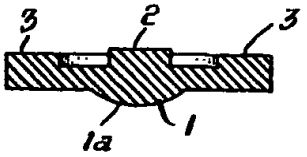

Fig. 2

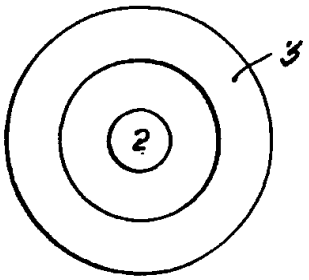

Fig 3

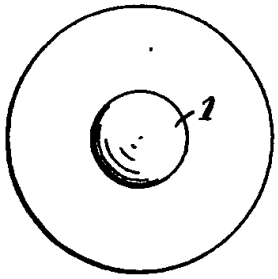

Fig 4